Chemical Sciences Facilities Presentation to Transportation, Infrastructure & Capitals Appropriations Subcommittee

15 February 2007

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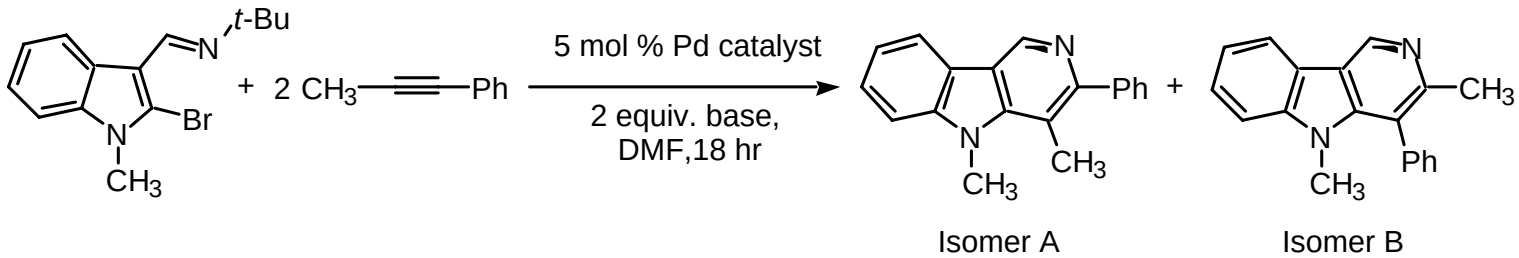
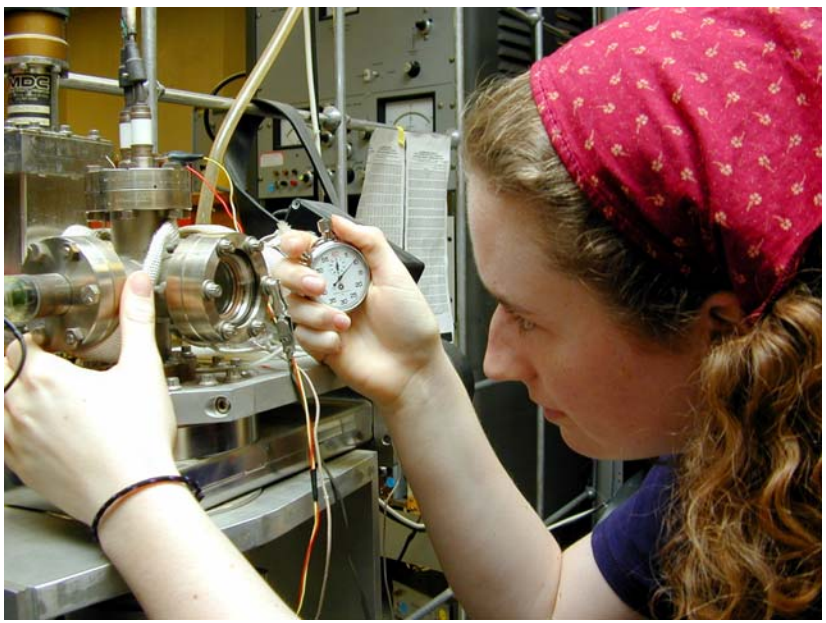
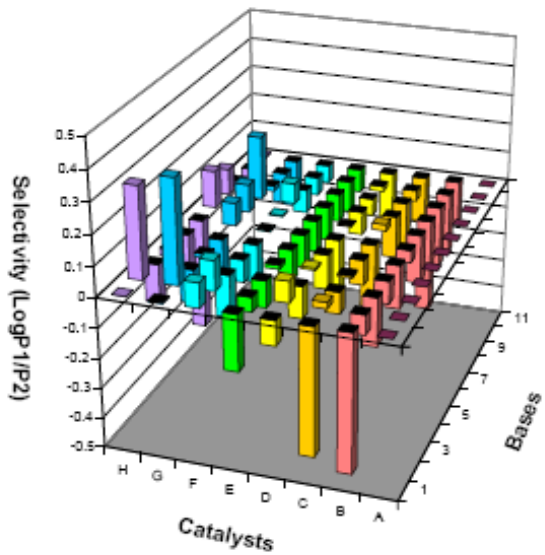
Iowa State University

Transforming Chemical Education and Research







Why Chemical Sciences?

- University of Science and Technology
- Chemistry is the central science
  - Molecular basis for biology, biotechnology
  - Material science, engineering and physics
  - Biofuels and biorenewables
  - Food and nutrition
  - Agricultural chemicals
  - Veterinary medicine
- 4000 undergraduates per semester
- 40 different university programs require chemistry
- Major role in Ames Laboratory

Outdated Facilities

Gilman Hall
1913,1965

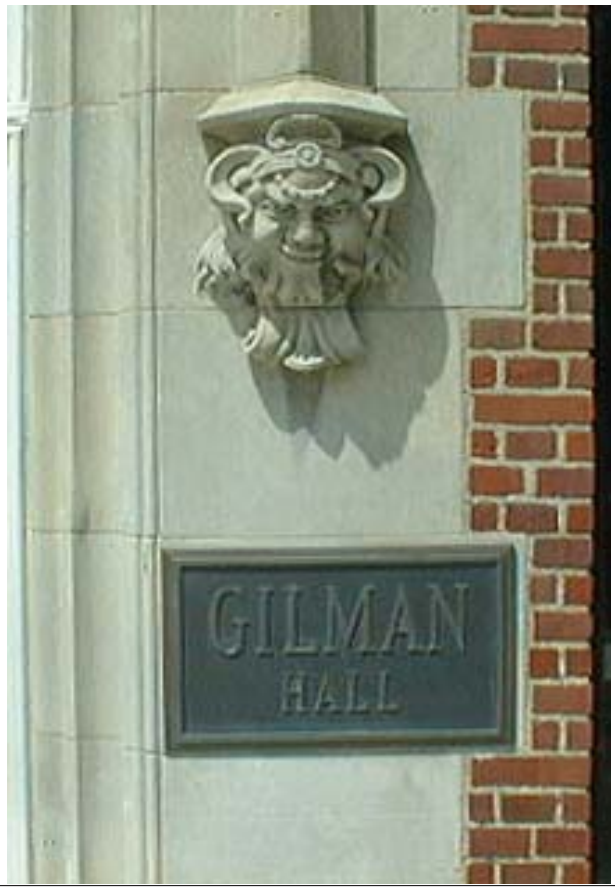
Urgent Needs

- Accommodate modern research and teaching activities
- Increase competitiveness for attracting and retaining faculty and students
- Increase competitiveness for new initiatives and funding (Keck, Carver)
- Almost all peer institutions have new (<10 years) chemical sciences facilities
- Recommendation of external review team, September, 2005

Chemistry Department - Teaching

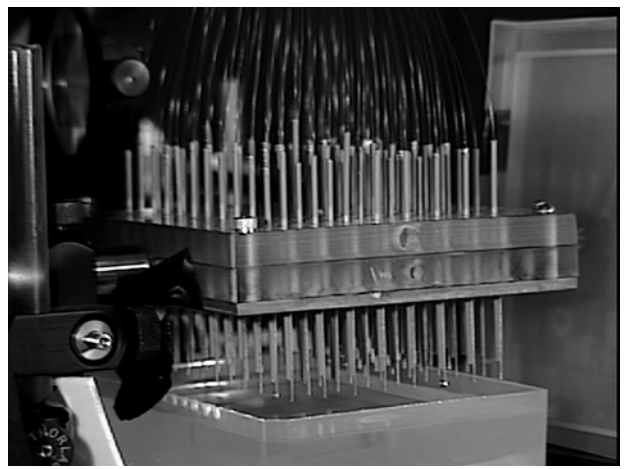
Top Five Buildings for Scheduled Student Activity

	Student Clock Hours
Carver Hall	28,530
Gerdin	27,092
Gilman	*26,897*
Design	20,835
Kildee	19,062



Chemistry Department - Research

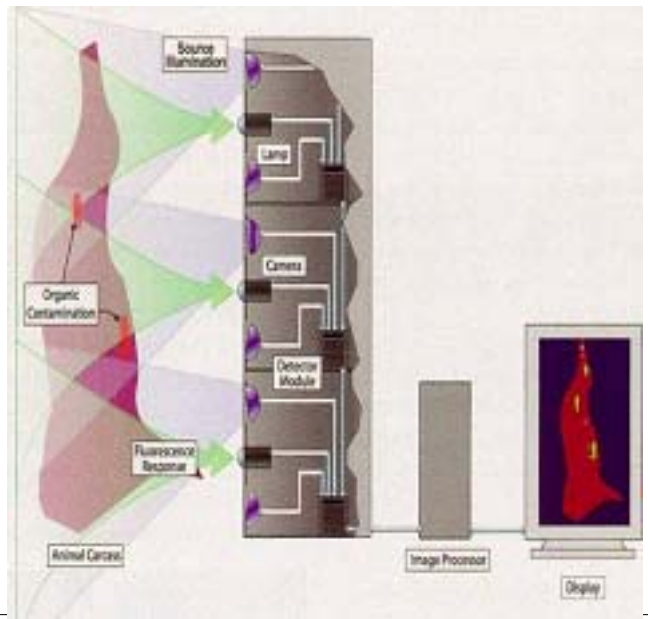
- Highest ranking (National Research Council) among all ISU departments
- Analytical chemistry 9th in U.S.
- Most Distinguished Professors
- Highest level of research funding
- Largest PhD program
- >5 start-up companies



Jacob Petrich

Finsen Award for Outstanding Achievement in Photobiology
R&D100 Award
Secretary of Agriculture Award for Protection of the Food Supply

- Rapid real-time testing for contamination on meat carcasses



Edward Yeung

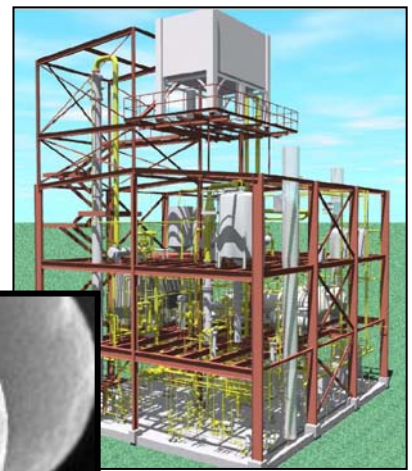
Distinguished Professor
Robert Allen Wright Chair Professor
4 R&D 100 Awards
ACS Award in Analytical Chemistry
ACS Award in Chromatography

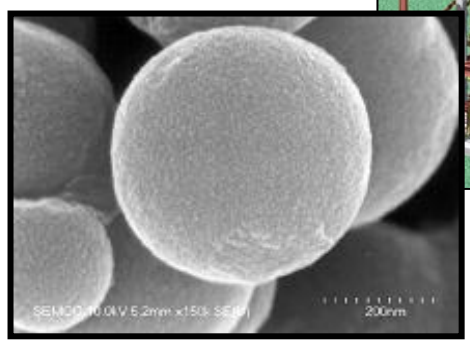
- DNA Sequencing
- Plant Sciences Institute
- Mass Analysis of Plant Metabolites

George Kraus

University Professor
Regents Award for Faculty Excellence
ISU Extension Team Achievement Award

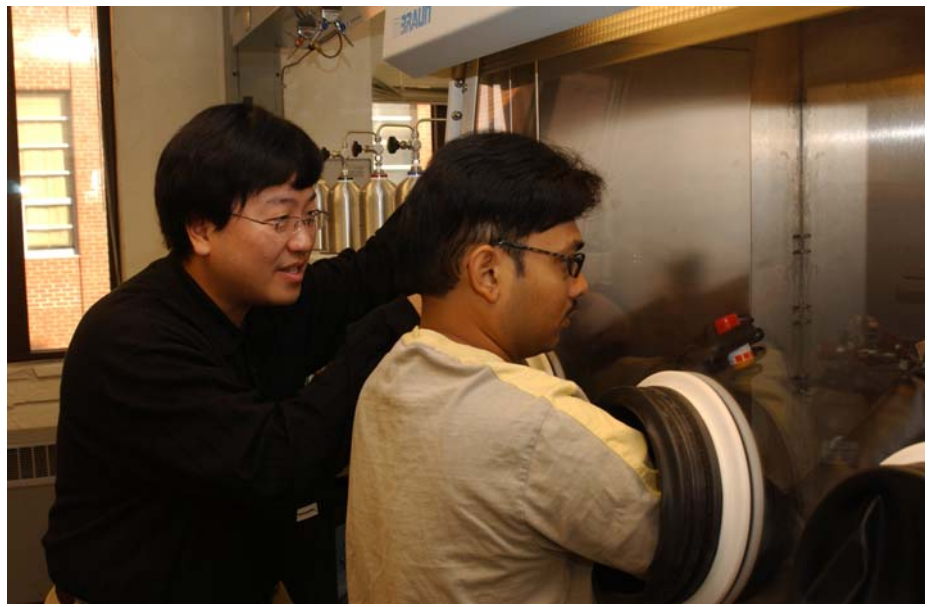
- Convert soy oil into soy diesel
- Convert byproducts into value-added products, e.g., anti-freeze
- Convert ethanol into hydrogen



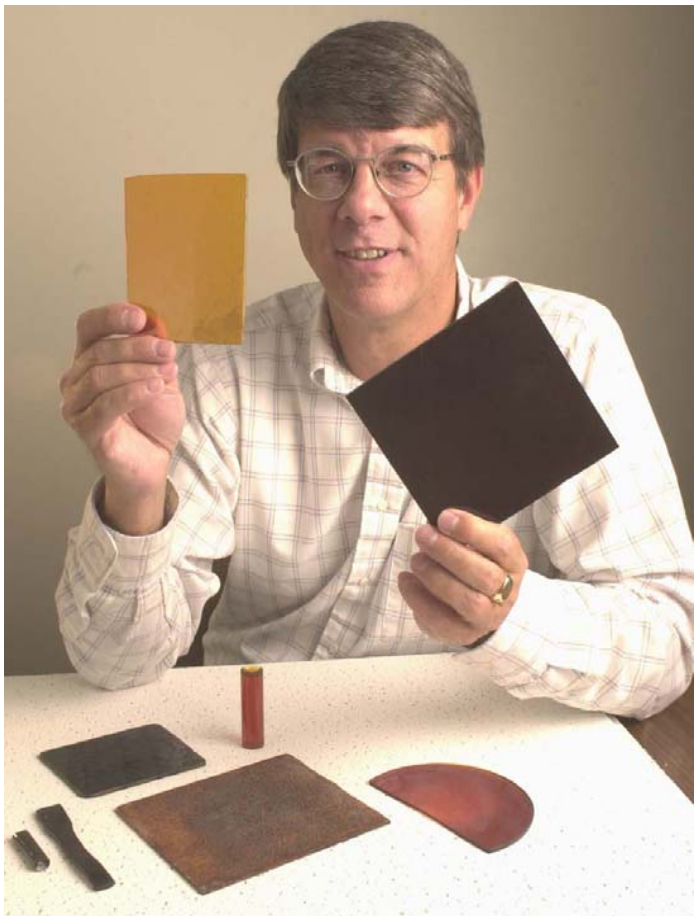


Victor Lin

- Catalysis, green chemistry, energy production
- Grow Iowa Values Fund - catalysts that are recyclable, eliminating the “wash step” of biodiesel production, lowering the cost.
- Started small business to synthesize catalysts for biodiesel production
- Retention successful



Richard Larock



University Professor
ACS Edward Leete Award
ACS Arthur C. Cope Award

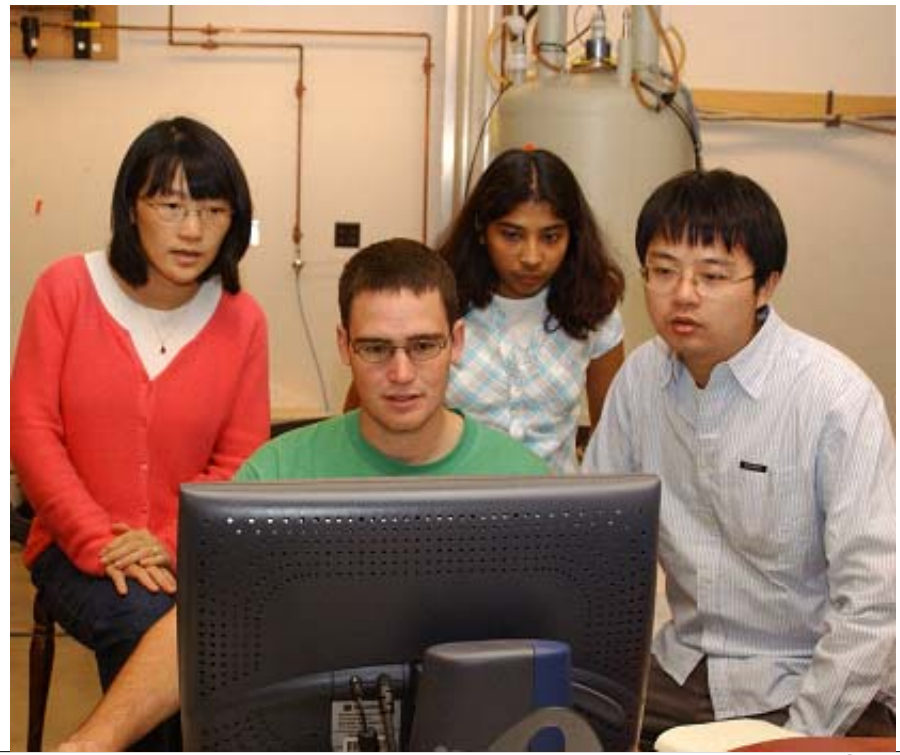
- Bioplastics from soybean oil
- Commercialization of a corn/soy oil-based composite hog feeder
- Retention Successful

Mei Hong

ACS Award in Pure Chemistry

John D. Corbett Professor

- Structure and dynamics of protein molecules
- Major funding for new instruments
- Follows degradation of corn, switchgrass
- Retention successful



Nicola Pohl

Alfred P. Sloan Fellowship

Caldwell Professor

Member of Plant Sciences Institute

- Synthesizes and studies carbohydrates
- Studies sugars from corn and switchgrass
- Retention successful

Chemical Education

- 19 Teaching/Advising awards since 2000
- Major federal funding to develop new pedagogical approaches
- Training and continuing education for Iowa science teachers
- Outreach to K-12 schools, Science Bound
- Distance learning modules

Auditorium, 1002 Gilman

1915

1954

2004

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Progress to Date

- *$5M* appropriated in 2006 for planning a new building.
- Building planning began on August 2006 with the firm of Ellenzweig Associates, Inc. and is nearly complete.
- President Geoffroy is aggressively and enthusiastically supporting this project: *"start construction spring/summer 2008; completion date, 2010."*
- A campaign committee to acquire the remaining funds has been formed. Major donors have been identified.

Project Budget

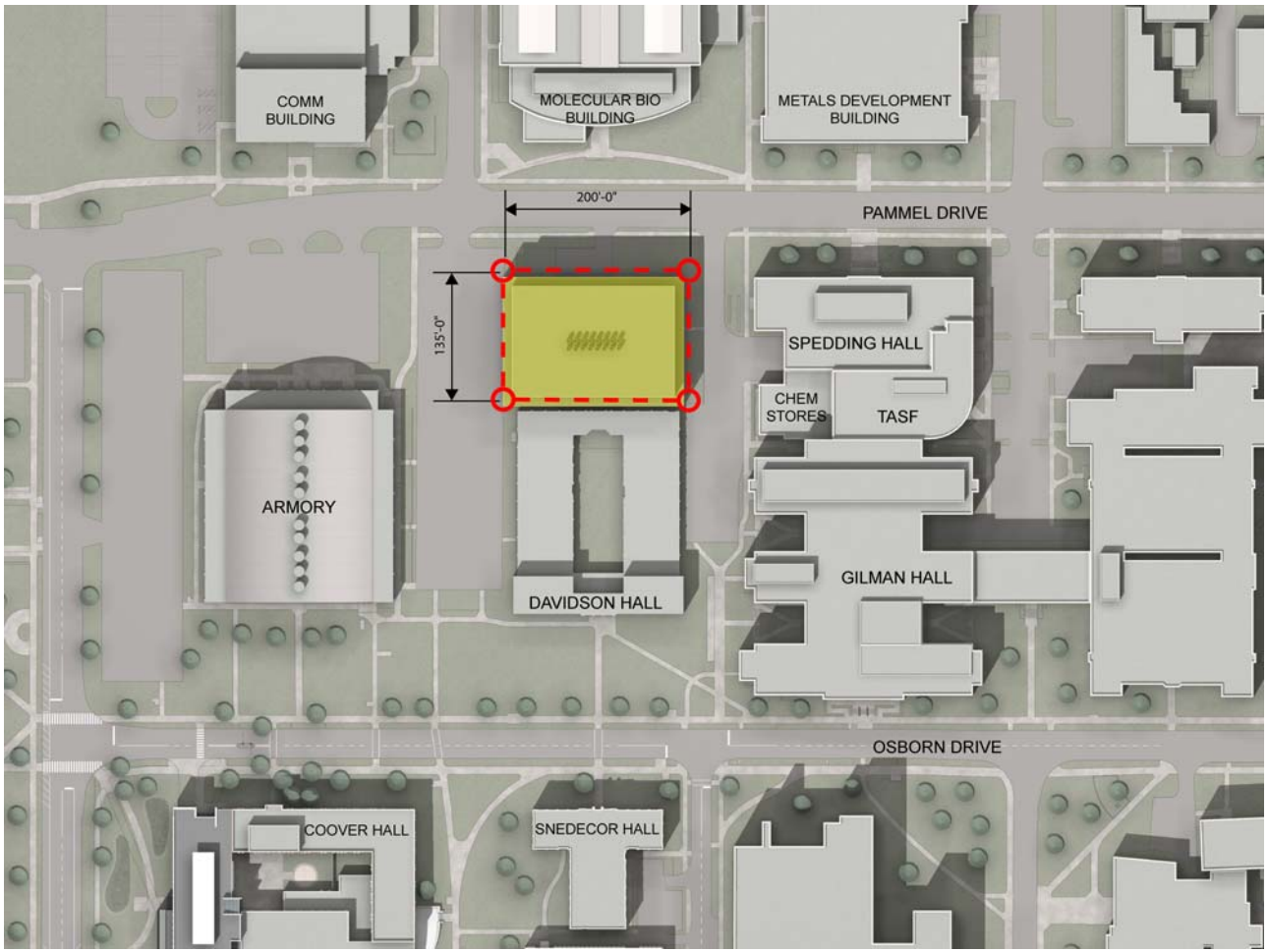
$5 M in planning appropriations in 2006

$15.6 M in private fundraising

$53.9 M in State appropriations

Project budget: $ 74.5 M

Site Massing Considerations



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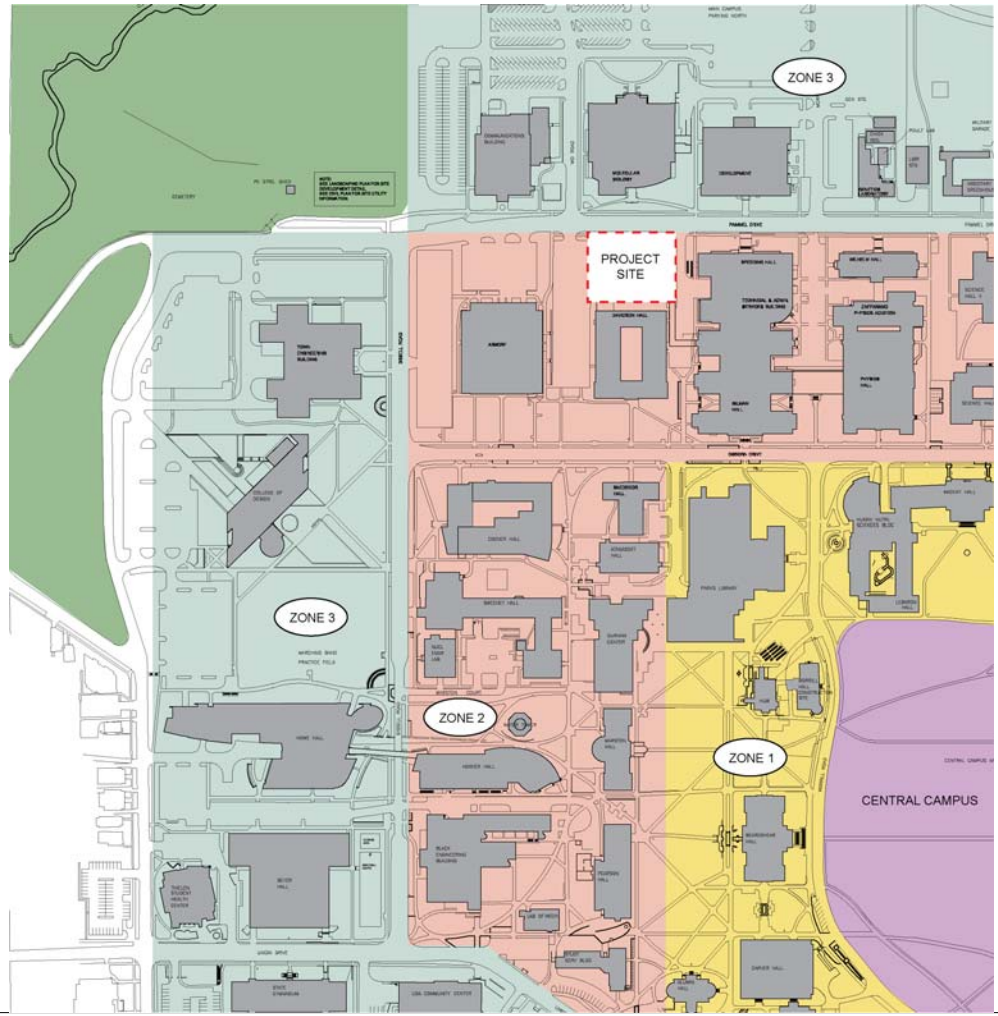

Example of Research Laboratories